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ABSTRACT

In a social dilemma situation, a group member who takes defecting choice gains more self-interest than a member who takes cooperating choice. Thus, inequity of members' individual interests would be produced depending on whether a member takes cooperating choice or defecting choice. To study effects of the perceived inequity and attributional difference of the cause of the inequity in a social dilemma, a computer controlled experiment was conducted using a bogus member who did not cooperate at all. Subjects were undergraduates (N=110) at a major university in Japan. Special manipulation of attribution of the cause of the inequity was operated in the experiment. The results of the experiment indicated that subjects cooperated less when they perceived the inequity, and, in addition, they cooperated less when they attributed the cause of the inequity to intentional selfish behavior of an individual than when they attributed the cause to the system or the structure of the experiment. Even when people realized the necessity of mutual cooperation to solve a social dilemma, the existence of social injustice such as the inequality of the allocation of public goods discouraged peoples' motivation to cooperate. The negative effect of the existence of social injustice in promoting cooperation is more salient when intentional behavior of a member causes the inequity. (Author/ABL)

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Attribution of the cause of the inequity in a social dilemma

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ABSTRACT

To examine effects of the perceived inequity and attributional difference of the cause of the inequity in a social dilemma, a computer controlled experiment was conducted using a bogus member who did not cooperate at all. Special manipulation of attribution of the cause of the inequity was operated in the experiment. The results of the experiment indicate that subjects cooperate less when they perceived the inequaity and in addition, they cooperated less when they attributed the cause of the inequity to intentional selfish behavior of an individual than when they attributed the cause to the system or the structure of the experiment.

INTRODUCTION

In a social dilemma situation, a group member who takes defecting choice gains more self-interest than a member who takes cooperating choice. Thus, inequity of members' individual interest would be produced depending on whether he/she takes coooperating choice or defecting choice. In addition, even when all of group members attain mutual cooperation, the inequity still may exists in the allocation of group interests(public goods) among members. In experimental studies of social dilemmas, enough attention has not been paid to the issue of equity with several exceptions (Samuelson and Messick, 1986; Sato, 1985; Sato, 1987). Sato(1985) demonstrated the inequality of access to the commons among group members reduced cooperation in a social dilemma. Main purpose of this study is to examine this tendency focusing on a more detailed aspects of members' causal attribution of the inequality.

General hypothesis to be tested in this study is that an inequitable allocation of the benefits or the cost in a social dilemma would facilitate defecting behavior of members who cannot enjoy the outcome of the inequitable allocation. People feel unfair observing defecting behavior. However, people feel less unfair when they find things beyound individual's control such as a structure of a group forces the defecting behavior. In this study I am especially interested in how different attributions of the same defecting behavior which induce the feeling of unfairness affect cooperating behavior of members of a group in a social dilemma situation. For this purpose, the inequitable allocation of a public good was created through a computer. In two of conditions of the experiment, one subject was a bogus member who did not cooperate at all(individual attribution conditions). In the other condition one subject was also a bogus member whom the experimenter did not allow to cooperate(system attribution condition) but still received benefits (a bonus) from other members' contribution. Therefore, in the former two conditions the subjects would attribute the cause of inequality of earned money among members

to the intentional selfish behavior of a participant of the experiment. On the other hand, in the latter condition subjects are suppoosed to attribute the cause of inequality of earned money among participants to the system or the structure of the experiment. If people attribute the cause of perceived inequality to intentional defecting behavior of a member in a group, they do not want to act cooperatively because their cooperation increases a public good on which such defecting member can free ride. On the other hand, if they attribute the cause of the perceived inequality to the system or the structure of a group in a social dilemma, they feel less unfair than subjects in the individual attribution conditions. This is because a member who is receiving more is not doing so intentionally but an extenal factor such as the system of the structure of a group causes such inequality. However, such inequitable structure still makes members think that their cooperating behavior promotes the inequality. Therefore, people are less willing to act cooperatively than in a situation where they do not perceive any inequalities.

METHOD

A social dilemma situation was created in the laboratory in the following way. Each member of the group was given resource money(50 yen = about 35 cent) in each session. They could contribute any portion of the money to generate benefits for the other member or keep it for themselves. The amount contributed was doubled or quadrupled depending on a condition by the experimenter and then allocated equally among the other members. In all conditions, when all actual subjects contribute all of resource money they received 100 yen(about 70 cent). Therefore, the actual subjects receive more (100 yen) if all of them contribute all resource money than if they keep it for themselves (50 yen). The experiment consisted of 12 sessions. There were four conditions in this experiment. In the "equality" condition, there was no bogus member. In the "two plus a bogus member" condition(individual attribution condition), the experiment was run in three members, however, one

member was a bogus member who did not contribute at all through all twelve sessions. The subjects only in this condition were told that they obtain doubled benefits from other two members' contribution as a bonus to keep the actual gain of cooperation constant in all four conditions. In the "three plus a bogus member" condition(individual attribution condition, the experiment was run in four members, including one bogus member. In the "two plus a bogus member" and the "three plus a bogus member", because the subjects do not know one participant is a bogus member whose responses are compeletely computer programed, the gain of cooperation which the subjects perceive from the explanation of the structure is greater than that in the "equality" condition. That is, according to Bonacichi, Shure, Kahan, and Meeker(1976), the gain of cooperation is the difference in the amount of collective benefit when all cooperate compared to all defect, therefore the gain of cooperation is 150yen in the "two plus a bogus member" condition (200yen-50yen) and 100yen in "three plus a bogus member" condition (150yen-50yen). On the other hand, the gain of cooperation in the equality condition is 50yen(100yen-50yen). Because of greater gain of cooperation, the subjects in two individual attribution conditions are predicted to cooperate more than those in the "equality" condition. If it is not the case, the lower cooperation rate should be due to the existence of a member who does not cooperate at all. The subjects may feel strong unfairness of the outcome with the existence of such member. In the "three plus a bogus member" condition, the subjects are believed that they belong to a group which consists of four members. Therefore, lower cooperation rate in this condition still can to attributed to the larger group size. If we find no signicant difference in the cooperation rates of the "two plus a bogus member" condition (three person group) and the "three plus a bogus member" condition, the difference of cooperation rate would be explained by the existence of defecting member. In the fourth condition, namely in the "system attribution condition", the experimenter informed that one subject was in a special status and was not allowed to contribute but received a bonus created

by the others' contribution. The subjects in this condition were asked to draw a card to determine an isolation room for each subject out of three cards, arriving at the laboratory. The experimenter informed the subject that a participant has already arrived and has been waiting in an isolation room. This participant was a confederate. When the participants read the instruction, they knew that the isolation room which was occupied by the fisrt arrived participant was assigned to the special status. The experiment was completely computer controlled. As all actual members entered their decisions (the amount to contribute to generate benefits for the other members) into their keyboards, the results of all members of the session was displayed on the subject's screen. The subjects were 110 undergraduates at a major university in Japan. The dependent variable was the contribution level. It was predicted that the subjects would contribute more in the equality condition than in other three inequality conditions. It was also predicted that the subjects in the system attribution condition would more contribute than subjects in the individual attribution conditions.

RESULTS

Since subjects' decisions within each group were interdependent, groups rather than individual subjects were used as the unit in the analysis. Twelve sessions were aggregated into three trial-blocks, and used as a repeated factor in the analysis. The main effect of experimental condition in the experimental condition $\times$ trial block ANOVA was significant($F(3,36) = 5.51$, $p<.01$). The main effect of trial block was also significant($F(2,72) = 8.36$, $p<.001$). The experimental condition $\times$ trial block interaction effect was not significant($F(6, 72) = 0.57$, ns.). The result of the orthogonal comparison between the equality condition and other three conditions indicates subjects in the equality condition contributed more than(M = 25.53yen) subjects in three other conditions(M = 15.45yen) ($F(1,36) = 10.41$, $p<.01$)(see Table 1). In addition, the result of the orthogonal comparison between two individual

attribution conditions and the system attribution condition indicates that subjects in the system attribution condition contributed more (M = 20.78yen) than subjects in individual attribution conditions(M = 12.78yen)($F(1,36) = 5.82$, $p<.05$). Thus, both preditions on the subjects' contribution level were supported. Also, the result of orthogonal comparison between two plus one bogus member condition and three plus one bogus member condition was not significant ($F(1,36) = 0.29$, ns.). Therefore, there was no effect of group size in contribution of subjects in two individual attribution conditions. This means that lower contribution level of subjects in the three plus one bogus member condition than in the equality condition in which smaller group(3 person group) was used cannot be explained in terms of larger group size in the former condition. This examination was conducted on the base of the traditional finding that people tend to act less cooperatively in a larger group.

CONCLUSIONS

The results of this experiment suggest that when subjects perceive inequality in the allocation of a public good in a social dilemma situation, they are less willing to cooperate each other. In addition, when they attribute the cause of the inequality to selfish defecting behavior of each member of a group, they are less willing to cooperate than when they attribute the cause to the system or the structure of a group in a social dilemma. It may be concluded that "intentional injustice" which is evitable by mutual cooperation of members in a group has a crucial effect on discouraging mutual cooperation and jeopatizing a state of a social dilemma. That is, even when people realize the necessity of mutual cooperation to solve a social dilemma, the existence of social injustice such as the inequality of the allocation of public goods discourages peoples' motivation to cooperate. The negative effect of the existence of social injustice in promoting cooperation is more salient when intentional behavior of a member causes the inequity.

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Table 1. The mean contributions

condition	1	2	3	overall
two + one bogus	14.62	11.25	9.38	11.75
(individual attribution)	(7.97)	(5.27)	(6.88)	(6.42)
equality	27.92	22.25	26.42	25.53
	(9.26)	(12.32)	(16.37)	(10.97)
three + one bogus	18.09	11.58	11.75	13.81
(individual attribution)	(9.00)	(8.71)	(9.18)	(7.10)
system attribution	23.75	18.83	19.75	20.78
	(6.61)	(10.31)	(11.48)	(9.01)

Standard deviations within parentheses